No. 802,443. PATENTED OCT. 24, 1905.

A. CERRUTI.

FLUXING MACHINE.

APPLICATION FILED JAN. 31, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

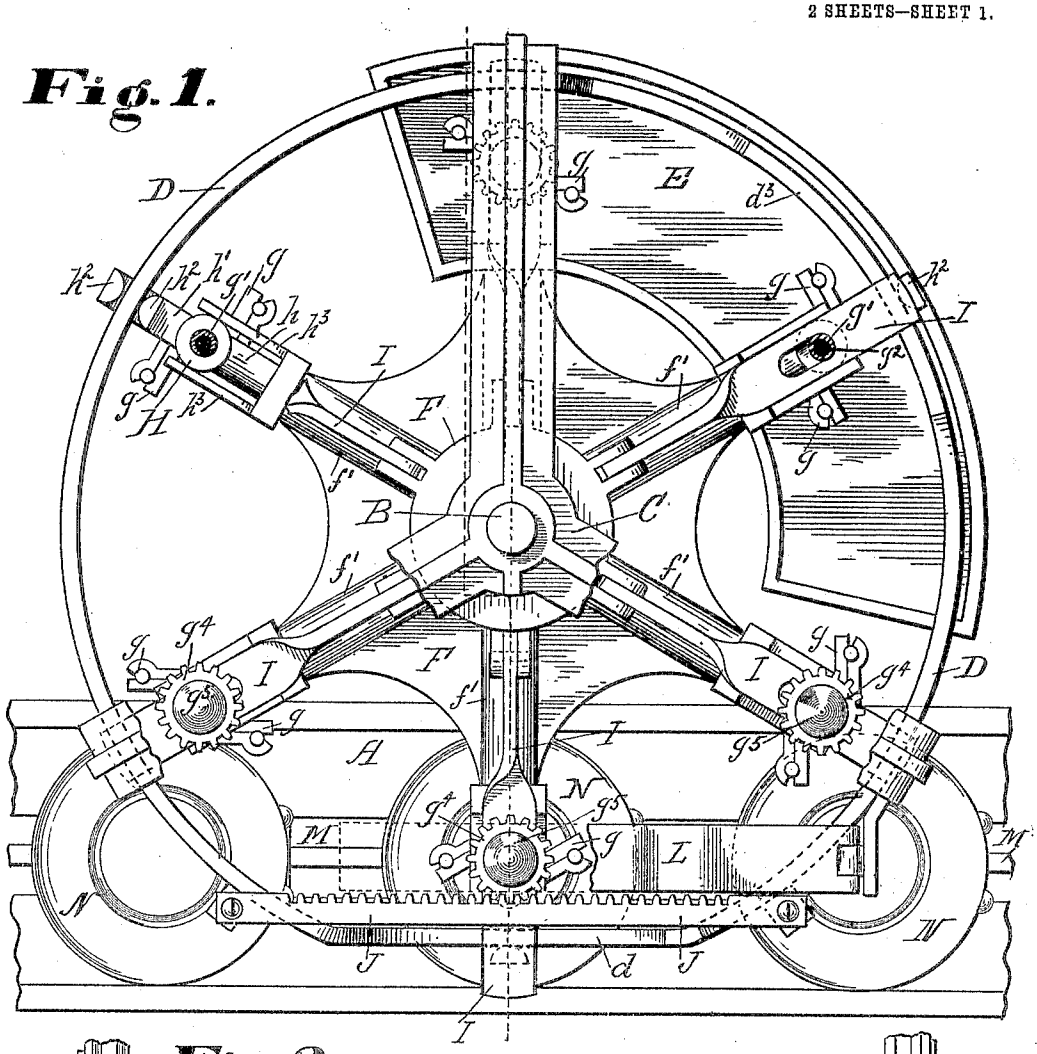
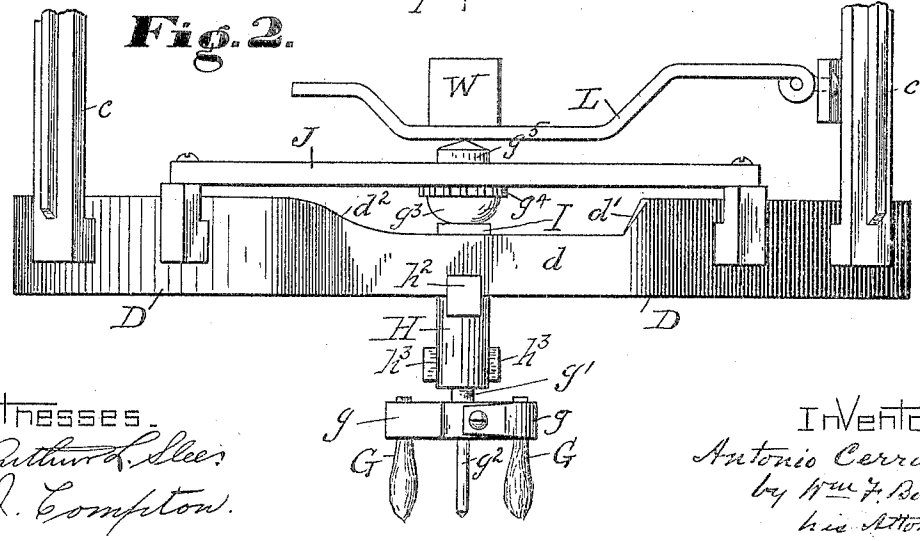


Fig. 2.



Witnesses.
Arthur L. Lees.
J. Compton.

Inventor
Antonio Cerruti
by Wm. F. Booth
his Attorney

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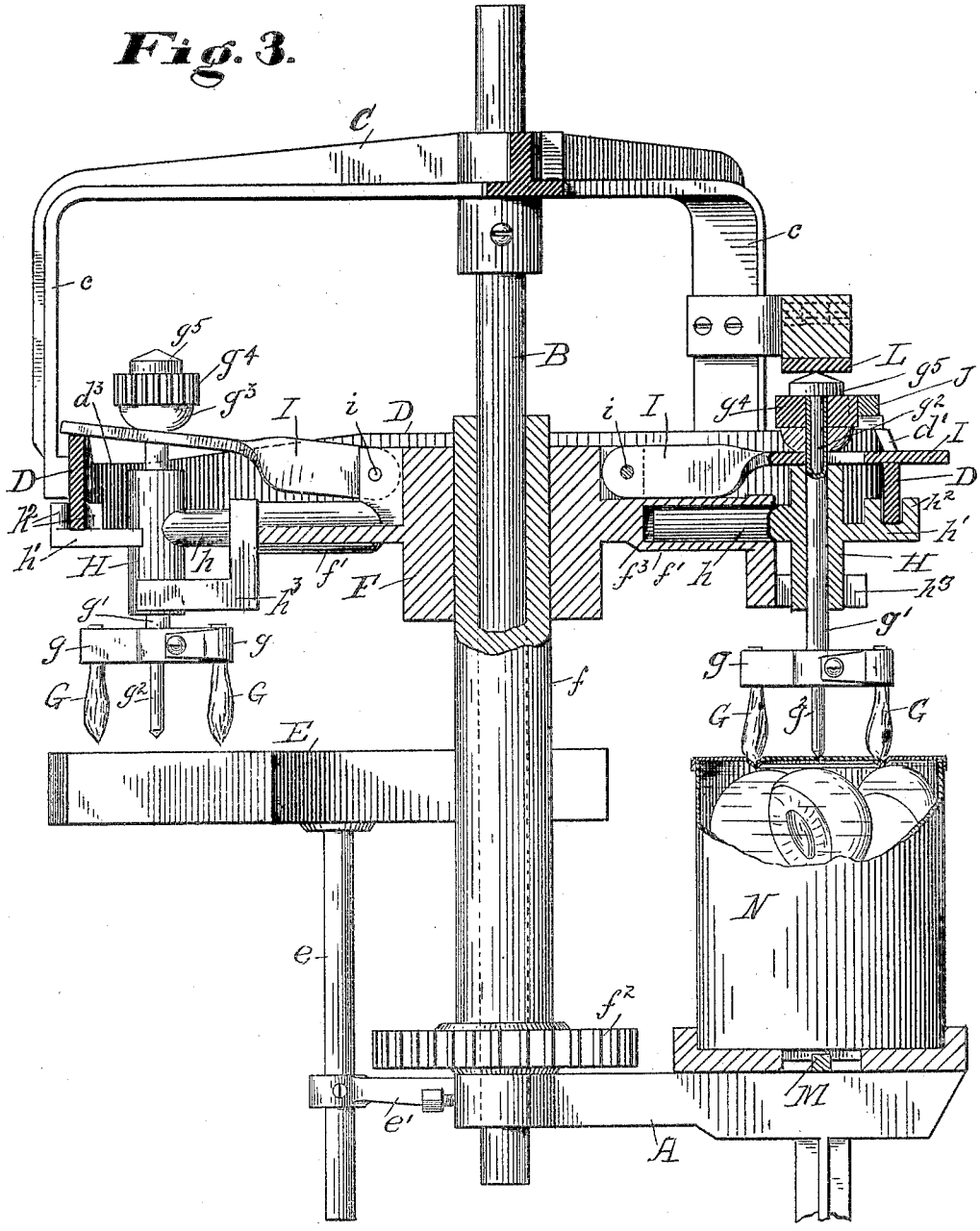
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

ANTONIO CERRUTI, OF SAN FRANCISCO, CALIFORNIA.

FLUXING-MACHINE.

No. 802,443. Specification of Letters Patent. Patented Oct. 24, 1905.

Application filed January 31, 1905. Serial No. 243,517.

To all whom it may concern:

Be it known that I, ANTONIO CERRUTI, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Fluxing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of machines for applying flux or acid to can-heads preparatory to soldering the caps, and especially to that type of these machines in which the cans are successively presented, by means of a traveling conveyer, to the action of the flux or acid applying brushes, which brushes are carried in annular series by a rotating carrier and are in addition rotated on their own axes and moved vertically into and out of contact with the cans.

My invention consists in a novel construction and arrangement of parts by which the brushes are enabled to accurately engage and remain in proper contact with the cans while said cans are traveling in a straight line.

In machines of the general type above referred to as the brushes in annular series are mounted in a rotating carrier and said brushes therefore describe a true circular path, while the cans are borne by a conveyer which travels in a line parallel with a tangent to this path, it follows that if the cans also travel in this line and without any deviation therefrom there can be but a brief moment when the brushes descending upon the can will accurately register with the groove in its head to which the flux or acid is to be applied. To avoid this undesirable brief and inaccurate contact and to give a longer time for the brushes to rotate in the groove and apply the flux thereto, it has been proposed to cause the can itself, by means of guides, to deviate from its straight path and follow the arc of the travel of the brush; but this is not satisfactory in practice. By my invention I am enabled to carry the cans in a straight line and by the timely diversion of the brushes from a circular into a straight path am able to give ample time of accurate contact between the brush and can. This will now be more fully understood by the following description, in connection with the accompanying drawings, in which—

Figure 1 is a top plan, partly broken, of my machine. Fig. 2 is a front view of the cam-track, showing one pair of brushes in the straight portion of its travel. Fig. 3 is a sectional elevation of the machine.

A is a frame or table-top in which is mounted the fixed central shaft B. To the upper portion of this shaft is secured the bracket C, the depending arms c of which carry the cam-track D. The cam-track is, as shown in Fig. 1, for the greater portion of its course circular; but at its front (designated by d) it is straight, extending in the line of a chord of an arc of the track. This straight portion d, as is shown clearly in Fig. 2, is depressed—that is, the top of the track descends, the entrance-slope at d' being abrupt, while the rising slope at d^2 is more gradual. A somewhat similar depression in the track occurs at d^3, as shown in Fig. 3, which depression is immediately over the receptacle E, which contains the flux or acid bath, said receptacle being supported, as shown in said figure, by a standard e, carried by an arm e', secured to the frame A.

Mounted rotatably upon the fixed central shaft B by means of the sleeve f is the brush-carrier or spider F, having radial arms f'. A rotary motion is to be imparted to the brush-carrier F by suitable means—as, for example, by power applied to the sprocket f^2 on said sleeve, Fig. 3.

G represents the brushes arranged in pairs in an annular series. Each pair of brushes is carried by arms g, which are secured to a spindle g'. The spindle is a tubular one, as shown on the right in Fig. 3, and through it passes freely and projects below the holding-down rod g^2 for the can-cap, said rod having a head g^5. The brush-spindle g' is mounted rotatably in a head H, through which it freely passes, so that it may have a vertical movement, in addition to a rotary movement, on its axis. Each brush-spindle has a semispherical antifriction top bearing g^3 and a pinion g^4.

The brush-heads H are mounted in the carrier F, so that they rotate therewith. The connection is an adjustable one adapting the heads to move radially toward or from the carrier center. This connection is here shown as consisting of an arm h of the head, telescoping, as seen in Fig. 3, in a socket f^3 of the carrier-arm f', whereby said head in addition to being carried around by the carrier is adapted to move radially, as required. This radial movement of the head is effected and controlled by a second arm h', projecting from the head and hav-

ing lugs h^2, which engage the cam-track D from below, as seen in Figs. 1 and 3. The head H is further guided in its radial movement by a projection h^3 from the carrier-arm.

The vertical movement of the brush-spindle is effected by a gravity lifter-arm I, pivoted at i to the carrier F. This arm is slotted over the spindle and bears under its top bearing g^3, its outer end traveling upon the top of the cam-track D.

Secured to the cam-track D and extending parallel with its straight front portion d is a fixed rack J.

Pivoted to one of the arms of the bracket C is a gravity presser-arm L, (seen best in Fig. 2,) which is provided with a weight W and which presses upon the heads g^5 of the cap-holding rods g^2 as they pass across the straight front of the machine.

M is a traveling conveyer the course of which is parallel with the straight front d of the cam-track.

N in Figs. 1 and 3 represents cans, which are carried by the conveyer, the can in Fig. 3 being acted upon by the brushes to apply the flux or acid to the cap-groove in its head.

The operation of the machine is as follows: A timely rotary motion is imparted to the carrier F by any suitable means. The brushes are thereby carried around. The movement of any one brush pair is this: By reason of the lifter-arm I traveling on the high part of the cam-track D the brush is held up to its limit, as is shown on the left of Fig. 3. When the lifter-arm I reaches the depression d^3, it descends and allows the brush-spindle to drop, whereby the brush is dipped into the flux or acid bath in receptacle E. As the lifter-arm rises from said depression d^3 it lifts the brush from the receptacle E and thereafter for a time carries it in an elevated position. When the lifter-arm reaches the depressed straight front d of the cam-track, it descends and allows the brush-spindle to again drop, as seen in Fig. 2. The movement is so timed that the conveyer M has carried a can into a position directly under the spindle, so that the holddown-rod g^2 of the spindle drops upon the center of the can-cap and holds it down, while the brushes drop into the cap-groove of the can-head, as seen on the right in Fig. 3. The can and the brush now travel forward together in a straight course, the controlling-arm h' of the brush-head, by means of the engagement of its studs h^2 with the cam-track, forcing the brush-head inwardly in its adjustable or telescopic connection with the carrier-arm and holding it there to enable it to pursue the straight path. At the same time the pinion g^4 of the brush-spindle engages with the rack J, and during the course of the spindle in the straight path it is by this engagement rotated on its axis and the brushes are caused to revolve in the can-cap groove. This relative position of brushes and can continues with accuracy during the entire passage in the straight path, so that ample time is given to apply the flux or acid, and the cans pursue their straight course without the necessity for deviation. When the end of the straight course is reached, the lifter-arm I, traveling up on the high part of the cam-track, lifts the brushes, the pinion and rack engagement ceases, the brushes stop rotating and are pulled outwardly again by the controlling-arm h', and thereafter they pursue their circular course for a repetition of the operation.

The object of the gravity presser-arm L is by bearing on the head g^5 of the holddown-rod g^2, as shown in Fig. 2, to hold it and the brushes down during the time the latter are in contact with the can and to hold the cap steady and prevent its displacement while the brushes are operating.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fluxing-machine, the combination of a rotating carrier; an annular series of brush-heads mounted in said carrier, and having a radially-adjustable connection therewith; vertically-movable spindles mounted in said heads; brushes carried by said spindles; a cam-track circular throughout the greater portion of its course, the remaining portion being straight; means engaging the cam-track for effecting the radial adjustment of the brush-heads to conform to the course of the track; and means engaging the spindles and cam-track for effecting the vertical movement of said spindles, to drop the brushes at the straight portion of the cam-track and to raise them after passing said portion.

2. In a fluxing-machine, the combination of a rotating carrier; an annular series of brush-heads mounted in said carrier, and having a radially-adjustable connection therewith; vertically-movable spindles rotatably mounted in said heads; brushes carried by said spindles; a cam-track circular throughout the greater portion of its course, the remaining portion being straight; means engaging the cam-track for effecting the radial adjustment of the brush-heads to conform to the course of the track; means engaging the spindles and cam-track for effecting the vertical movement of said spindles, to drop the brushes at the straight portion of the cam-track and to raise them after passing said portion; and means for rotating said spindles on their axes while passing said straight portion.

3. In a fluxing-machine, the combination of a rotating carrier; an annular series of brush-heads mounted in said carrier, and having a radially-adjustable connection therewith; vertically-movable spindles rotatably mounted in said heads; brushes carried by said spindles; a cam-track circular throughout the greater portion of its course, the remaining

portion being straight; means engaging the cam-track for effecting the radial adjustment of the brush-heads to conform to the course of the track; means engaging the spindles and cam-track for effecting the vertical movement of said spindles, to drop the brushes at the straight portion of the cam-track and to raise them after passing said portion; and means for rotating said spindles on their axes while passing said straight portion consisting of a straight rack parallel with said straight portion, and a pinion on each brush-spindle adapted to engage with said rack.

4. In a fluxing-machine, the combination of a rotating carrier; an annular series of brush-heads mounted in said carrier, and having a radially-adjustable connection therewith; vertically-movable spindles rotatably mounted in said heads; brushes carried by said spindles; a cam-track circular throughout the greater portion of its course, the remaining portion being straight; means engaging the cam-track for effecting the radial adjustment of the brush-heads to conform to the course of the track; means engaging the spindles and cam-track for effecting the vertical movement of said spindles, to drop the brushes at the straight portion of the cam-track and to raise them after passing said portion; means for rotating said spindles on their axes while passing said straight portion; a vertically-movable rod passing through each spindle to hold the can-cap down, and a presser-arm adapted to bear upon the head of said rod while passing said straight portion.

5. In a fluxing-machine the combination of a fixed central shaft; a bracket carried thereby; a cam-track carried by the bracket, said track being circular throughout the greater portion of its course, the remaining portion being straight and depressed; a rotatable carrier mounted on the central shaft; an annular series of brush-heads carried by and radially adjustable in said carrier, said heads having arms engaging the cam-track for effecting their radial adjustment as required by the course of the track; spindles carried by and vertically movable in the brush-heads; pivoted lifter-arms secured to the carrier and engaging both the spindles and the cam-track, to effect the vertical movement of the spindles; and brushes carried by said spindles.

6. In a fluxing-machine the combination of a fixed central shaft; a bracket carried thereby; a cam-track carried by the bracket, said track being circular throughout the greater portion of its course, the remaining portion being straight and depressed; a rotatable carrier mounted on the central shaft; an annular series of brush-heads carried by and radially adjustable in said carrier, said heads having arms engaging the cam-track for effecting their radial adjustment as required by the course of the track; spindles carried rotatably by and vertically movable in the brush-heads; pivoted lifter-arms secured to the carrier and engaging both the spindles and the cam-track, to effect the vertical movement of the spindles; brushes carried by said spindles; a fixed rack parallel with the straight portion of the cam-track and a pinion on each brush-spindle adapted to engage said rack.

7. In a fluxing-machine, the combination of a rotating carrier; a brush carried thereby; and means for diverting said brush, at a given portion of its course, from a circular to a straight path.

8. In a fluxing-machine, the combination of a rotating carrier; a brush adjustably mounted in said carrier; and a guide to divert said brush, at a given portion of its course, from a circular to a straight path.

In witness whereof I have hereunto set my hand.

ANTONIO CERRUTI.

In presence of—

J. COMPTON,

D. B. RICHARDS.